AMENDMENT TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in this application.

Listing of Claims:

1. (currently amended): A volume holographic digital data storage system capable of angular-multiplexing, which ~~comprising~~ comprises:

a light generator for generating a laser beam;

a beam splitter for separating the laser beam into a signal beam and a an initial reference beam;

a SLM for modulating the signal beam into binary pixel data on a page-by-page basis based on data inputted from outside;

~~a reduced reference beam providing means for transmitting a reduced portion of the reference beam as a reduced reference beam; and~~

~~a lens having a plurality of incident locations for the reduced reference beam for refracting the reduced reference beam into a storage medium such that the reduced reference beam is projected towarded one of the incident locations on the lens, with the incident locations being spaced apart from each other to yield different refracted angles toward the storage medium with a satisfied angular sensitivity.~~

a lens for focusing an incident reference beam formed from the initial reference beam on a storage medium, the lens having a plurality of incident locations for the incident reference beam; and

an incident reference beam providing means for forming the incident reference beam from a portion of the initial reference beam in a size smaller than the size of the initial reference beam with said incident reference beam being parallel-shifted by said incident reference beam providing means such that the incident reference beam is shifted toward a given one of the incident locations on the lens,

wherein the incident reference beam formed by6 said incident reference beam providing means is a plane wave and the neighboring incident locations on the lens are spaced apart from each other by a certain degree for page separation.

2. (currently amended): The system of claim [[11]] 1, wherein the incident reference beam providing means includes:

an iris having a transmission region for transmitting only ~~the selected~~ a portion of the initial reference beam, thereby providing the incident reference beam and a non-transmission region for absorbing or reflecting a remainder portion of the initial reference beam; ~~and~~

an actuator for moving the iris on a two-dimensional plane to change from one of the incident locations to another of the incident locations; and

a reflecting means for reflecting the beam received from the iris toward said one of the incident locations on the lens.

3. (currently amended): The system of claim 2, wherein the reflecting means includes:

a first reflection mirror for reflecting the ~~reduced reference~~ beam received from the iris; and

a second reflection mirror for reflecting the ~~reduced reference~~ beam received from the first reflection mirror toward the lens.

4. (previously presented): The system of claim 3, further comprising another actuator for altering a position of the second reflection mirror.

5. (currently amended): The system of claim 4, wherein the another actuator moves the second reflection mirror with an incident angle of the ~~reduced~~ ~~reference~~ beam received from the first reflection mirror toward the second reflection mirror being unchanged.

6. (previously presented): The system of claim 3, further comprising another actuator for altering a position of the first reflection mirror.

7. (currently amended): A ~~control~~ holographic data recording method for a volume holographic digital data storage system of claim [[11]] 2, comprising the steps of:

(a) fixing the ~~beam selecting means~~ iris at a predetermined position;

(b) recording an interference pattern of the modulated signal beam and the focused incident reference beam received from the lens;

(c) moving the reflecting means while maintaining the position of the ~~beam selecting means~~ iris;

(d) recording an interference pattern of the modulated signal beam and the focused incident reference beam received from the lens;

(e) repeating the steps (c) to (d) as long as the incident reference beam has an incident location distinguishable from that of the previously generated incident reference beams ~~in order to satisfy an angular selectivity~~;

(f) changing the position of the ~~beam selecting means~~ iris; and

(g) repeating the steps (b) to (f) as long as the incident reference beam has an incident location distinguishable from that of the previously generated incident reference beams ~~in order to satisfy an angular selectivity~~.

8. (currently amended): A ~~control~~ holographic data recording method for a volume holographic digital data storage system of claim [[11]] 2, comprising the steps of:

(a) fixing the reflecting means at a predetermined position;

(b) recording an interference pattern of the modulated signal beam and the focused incident reference beam received from the lens;

(c) moving the ~~beam selecting means~~ iris while maintaining the position of the reflecting means;

(d) recording an interference pattern of the modulated signal beam and the focused incident reference beam received from the lens;

(e) repeating the steps (c) to (d) as long as the reference beam has an incident location distinguishable from that of the previously generated reference beams ~~in order to satisfy an angular selectivity~~;

(f) changing the position of the reflecting means; and

(g) repeating the steps (b) to (f) as long as the incident reference beam has an incident location distinguishable from that of the previously generated incident reference beams ~~in order to satisfy an angular selectivity~~.

9. (previously presented): The system of claim 2, wherein the iris has a circular shape and is provided with the transmission region at the center thereof and the annular-shaped non-transmission region therearound.

10. (previously presented): The system of claim 1, wherein the light generator includes:

a light source for emitting a source beam; and

a beam expander for expanding the source beam to provide the laser beam.

11. (cancelled).